

REMARKS

Applicants appreciate the Examiner's thorough review of the present application, and respectfully request reconsideration in light of the preceding amendments and the following remarks.

Claims 1-20 are pending in the application. The claims have been revised to better define the claimed invention. No new matter has been introduced through the foregoing amendments.

The **35 U.S.C. 112, second paragraph rejection** of claims 7-20 as being indefinite is noted. Particularly, the Examiner alleged that it is unclear as to the differences between STT, STT_R and STT_S. Applicants respectfully submit that the claim language is *clear to a person of ordinary skill in the art* in that STT_R is the STT of a received packet, and STT_S is a randomly selected STT as detailed in the language of the rejected claims. The purpose of using STT_R and STT_S is for easy reading and understanding of the claimed invention in this complex art. The **35 U.S.C. 112, second paragraph rejection** is therefore respectfully traversed.

Notwithstanding the above and solely for the purpose of expediting prosecution, Applicants have revised the rejected claims to remove the allegedly unclear abbreviations, without otherwise touching the merits.

Withdrawal of the **35 U.S.C. 112, second paragraph rejection** is believed appropriate and therefore respectfully requested.

The **35 U.S.C. 103(a) rejections** of all claims as being obvious over previously applied *Moran* in view of newly cited *Maher* are also noted. Basically, the Examiner alleged that *Maher* discloses the claimed "updating the service queue associated with the STT of the received packet in the queue information table based on a load of the STT of the received packet" which is admittedly missing from *Moran*. The Examiner then concluded that it would have been obvious to combine

Moran with *Maher* to arrive at the claimed invention.

Applicants respectfully disagree with the Examiner's rationale.

First, *Maher* does not at all disclose or suggest any updating of any table. As best seen in FIG. 5 of *Maher*, the reference simply assigns (boxes 516, 520) a data packet to either the low- or the high-priority queue. In this aspect, *Maher* is similar, if not the same, as *Moran* which has a priority filter table for filtering packets into the low- or the high-priority queue. Both references refer to usage of a priority filter table. However, they do not teach or suggest updating such table.

Second, *Maher* does not at all disclose or suggest any desirability of using the load of the STT of the received packet for updating a priority filter table. The reference discloses a payload analyzer in FIG. 3 which is configured for determining whether the data in each packet conforms to a set of predetermined requirements. *See Maher* at box 512 in FIG. 5. If the data does not conform to the predetermined requirements, the packet is dropped at box 508. Thus, *Maher* analyzes the packet's load to make a decision whether to drop the packet or not. The claimed invention, to the contrary, recites that load information is used to update the queue information table.

Third, the "load" disclosed in *Maher* and the "load" recited in the independent claims are not one and the same. As discussed immediately above, *Maher* is concerned with the load of an individual packet. The claimed invention, to the contrary, recites the load of the STT in the queue information table which includes load information on multiple previous packets of the same STT.

For any of the reasons detailed above, Applicants respectfully submit that the 35 U.S.C. 103(a) rejections are improper and should be withdrawn.

Notwithstanding the above and solely for the purpose of expediting prosecution, Applicants have revised the rejected claims to further distinguish the claimed invention from the applied art of record, i.e., by clarifying that the claimed "load" contains both the load of the current packet and

previous load information stored in the queue information table.

Specifically, independent claim 1 has been amended to direct to

1. An apparatus to be connected between a network access unit and a network to be protected, for protecting legitimate traffic from DoS (denial of service) and DDoS (distributed denial of service) attacks, said apparatus comprising:
 - a high-priority queue;
 - a low-priority queue;
 - a queue information table having, for each specific STT (source-based traffic trunk),
 - previous load information,** and
 - a service queue for a specific packet having the specific STT, wherein the service queue is the high-priority queue or the low-priority queue;
 - a packet classifier for receiving a packet from the network access unit, searching the queue information table for a service queue associated with an STT of the received packet, selectively transferring the received packet to the high-priority queue or the low-priority queue in accordance with the service queue, ;
 - a queue coordinator for receiving information on the received packet from the packet classifier, and updating the service queue associated with the STT of the received packet in the queue information table **based on (i) a load of the received packet and (ii) the previous load information stored in the queue information table in association with the STT of the received packet;** and
 - a buffer for buffering outputs of the high-priority queue and the low-priority queue and providing the buffered outputs to the network to be protected.

Both *Maher* and *Moran* fail to teach or suggest an apparatus to be connected between a network access unit and a network to be protected, for protecting legitimate traffic from DoS (denial of service) and DDoS (distributed denial of service) attacks.

As discussed above *Maher* does not at all disclose or suggest any updating of any table. The reference also fails to disclose or suggest any desirability of using the load of the STT of the received packet for updating a priority filter table. Finally, the “load” disclosed in *Maher* and the “load” recited in the claimed invention are different i.e., *Maher* is concerned with the load of an individual packet whereas the claimed invention, to the contrary, recites the load of the STT in the queue information table which includes load information on multiple previous packets of the same

STT.

In view of the above, it is respectfully submitted that the Examiner's proposed combination of *Maher* and *Moran* (if proper) fails to render the invention of claim 1 *prima facie* obvious. Accordingly, withdrawal of this rejection is kindly requested.

Claims 2-20 recite the same or similar features and are also considered to be patentable over the applied art of record.

Moreover, the methods of *Bremner-Barr* and *Dobson* (applied against claims 3-4, 9-20) do not disclose or suggest the claimed invention. The method of *Bremner-Barr* does not use traffic or load of the received packet, and the classifiers of *Bremner-Barr* place packets in the queues based on the source IP, destination IP, source port, destination port, protocol and suspiciousness. *Dobson* discloses a method wherein the call is placed by comparing the current load and a load threshold. *Bremner-Barr* and *Dobson* do not disclose or suggest the feature that the packets are placed based on the load of STT of a received packet and the load of a high-priority queue. Claims 3-4, 9-20 are therefore patentable on their own merits.

Each of the Examiner's rejections has been traversed. Accordingly, Applicants respectfully submit that all claims are now in condition for allowance. Early and favorable indication of allowance is courteously solicited.

The Examiner is invited to telephone the undersigned, Applicant's attorney of record, to facilitate advancement of the present application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 07-1337 and please credit any excess fees to such deposit account.

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